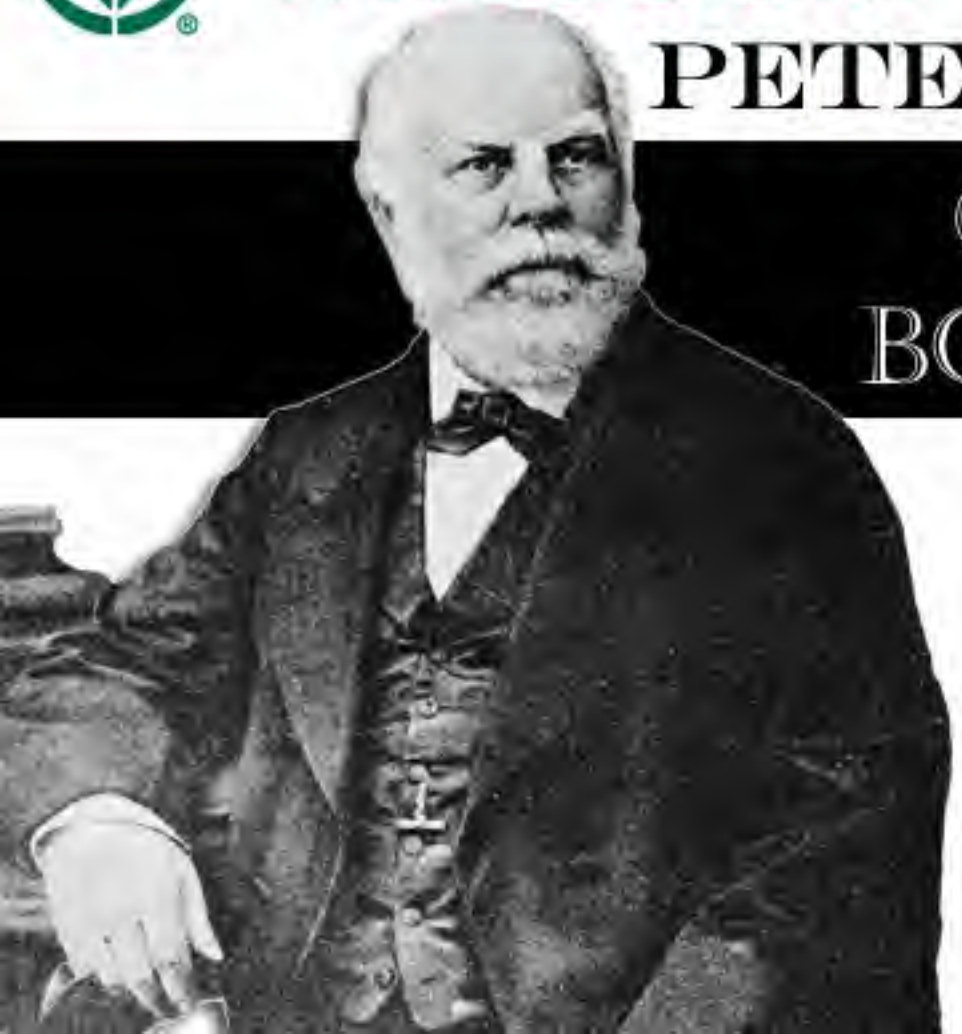
Missouri Botanical Garden
Peter H. Raven Library

George Engelmann Botanical Notebooks



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9 Tul

55

P. tuberculata

253-761

11217

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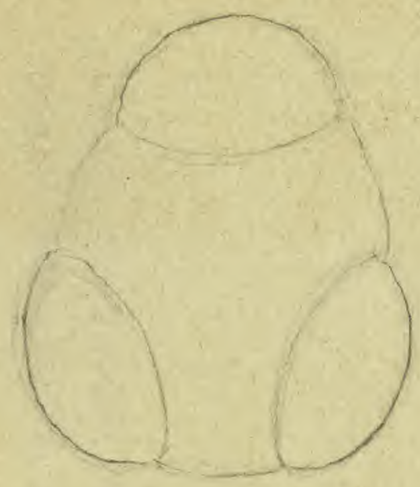
GEORGE ENGELMANN PAPERS

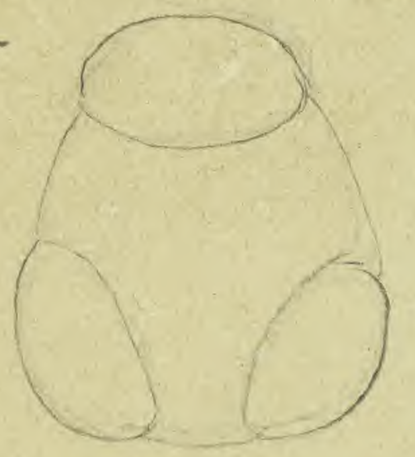
"Pinus Tuberculata"

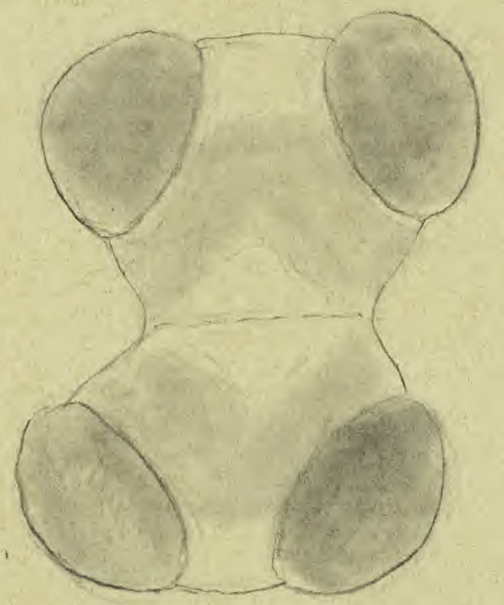
H. D. Missouri, May 4 1863

May 8 "1863

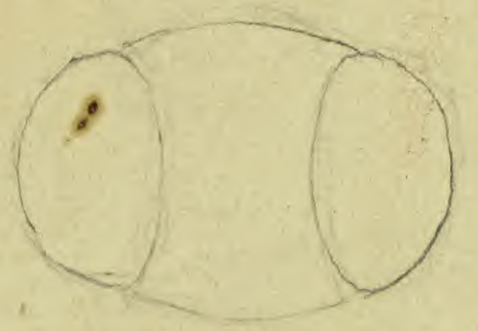


×4.15

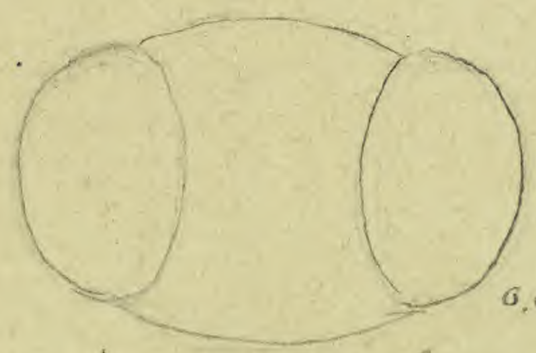




Lower part of young shoot naked, scaly, male amentes in a loose spike



0.036



0.041

annually large

X4

X10

0.039

8 knots

0 1 2 3 4 5 6 7 8 9 10
cm
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M. W. ALEXANDER,

SOUTH-EAST CORNER OF FOURTH AND MARKET STREETS,

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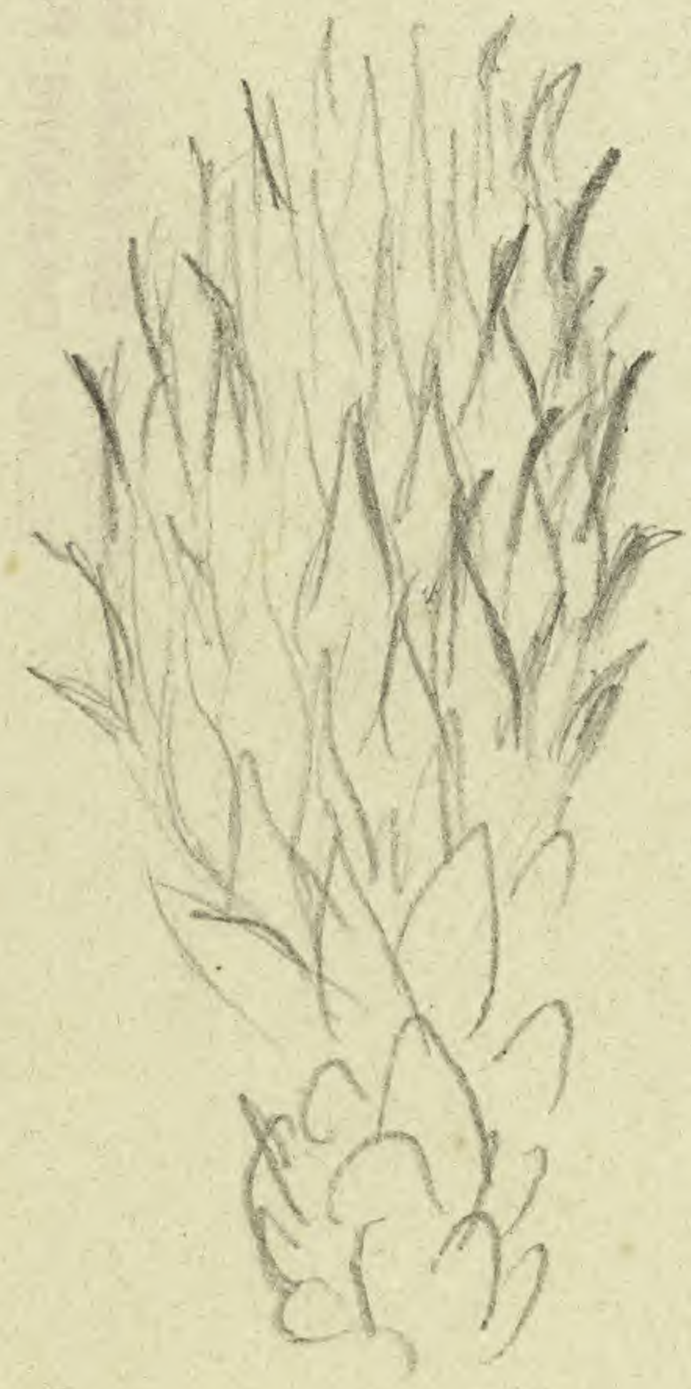

fem. amend or subm
young fruit of "P. tuberculata"
H.O. Beckmann 1863 May 28
exact – scales Lanceolate
exact; similar to those of
P. serotina, but more
crowded. – Mych skeleton

The young tree was killed
with corrosive S 1862/4

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cm
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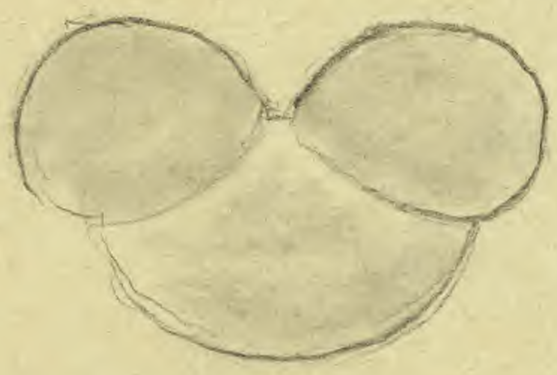
Pinus ~~tuberculata~~ for Bolander
tuberculata for Bol
Californi 1864

March 3rd 1865
Bolander No 1
Feb 21 1864

"Scrub-Pine"

for tree
8 inches thick
12 feet high —
Full bearing Trees
4-16 feet high
see note



size of Pollen = 0.039-0.041 Lin
x415

anthers with entire convex appendiculate scale

6-7 involucral bracts
all as long or longer the diameter of ament

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cm
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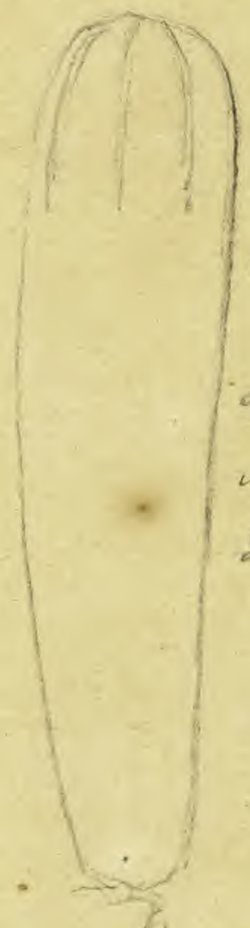
Bolander No 1 2176r 264 P. ~~insigne~~ tuberculata Mank 6 1865

Bolde

P. tuberculata for Bloomer

Conif cones

Embryo of ×10 old cone with smaller seeds



embryo ×10 of new cone with larger seeds

1 – 5 cotyls
1 – 6 –
1 – 7 –

1 seed with 5 Cotyls
1 —— 6 –
1 —— 7 –
1 —— 8 –

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N-471 Calif. State Survey
Santa Lucia Mtns

P. tuberculata ?

March 12 1865

Size of Pollen x 415

= 0.037 – 0.041 Lin

x 1'

x4

bract x 4

8 (rarely 7) scales

0 1 2 3 4 5 6 7 8 9 10
cm
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P. Lubrosulata

St Lucia Wats, Brewer 471

May 16 1878

×30

hypoderm all around but weak, scattering, interrupted

×60

Brewer 2207 is the same, but only 2 ducts same size

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P. tuberculata

May 16 1878

Bolander, July

Bolander 4.64
= H. laevis

×30

×60

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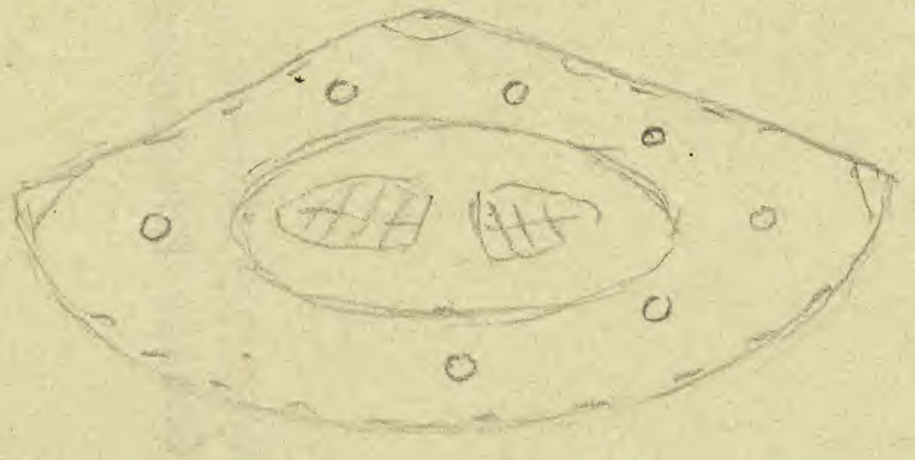
P. tuberculata
Boland April 1865

May 16 1878



many accessory ducts, parenchymatous
often surrounded by some hypodermal
cells — hypoderm strong on corners
also in interrupted bundles
all round.

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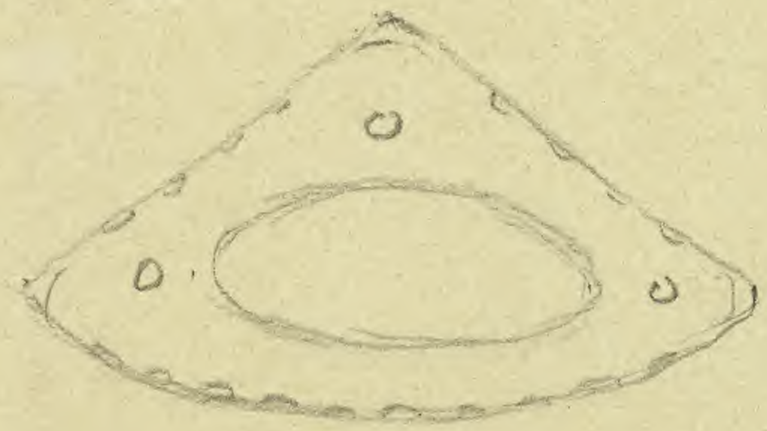
P. in Intermediate
on Lk. Kas.

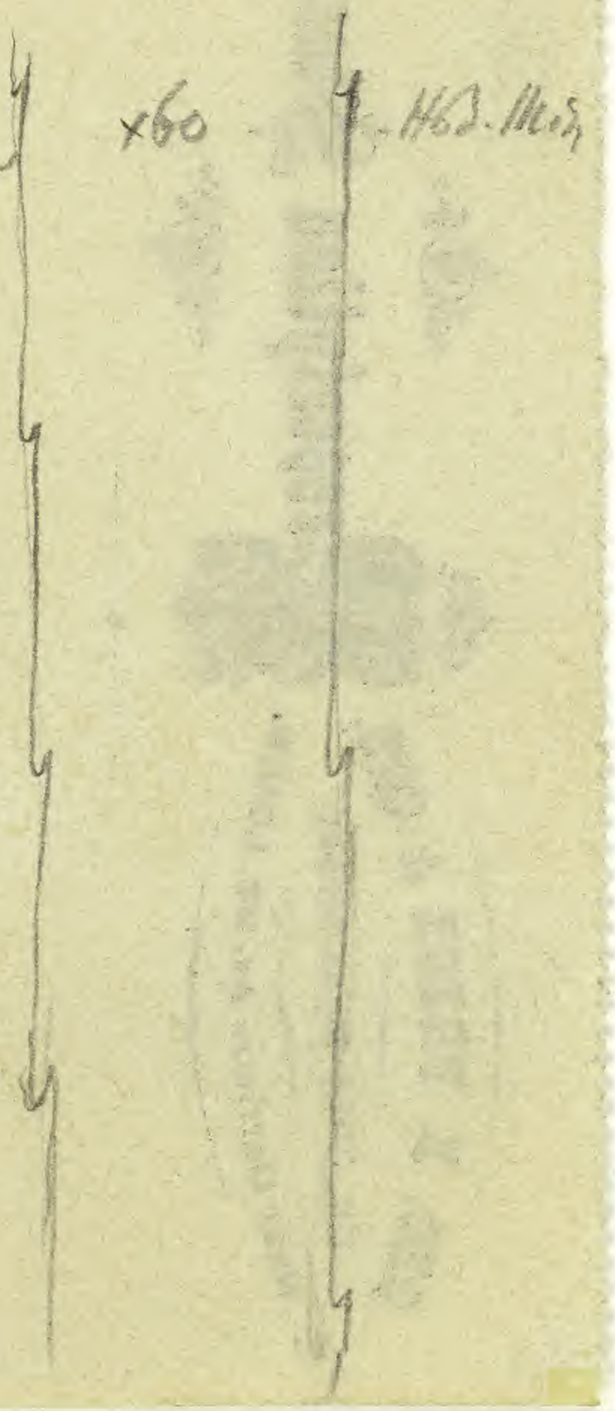
May 16 1872



3 ducts
bundles of hypoderm cells
all around & Cortex, none
inside

×30

Kas ×60 H.B. Mo.



H.B. Missouri
the same

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cm 0 1 2 3 4 5 6 7 8 9 10
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16 tab

56

P. Taeda

262-77

cm
0 1 2 3 4 5 6 7 8 9 10
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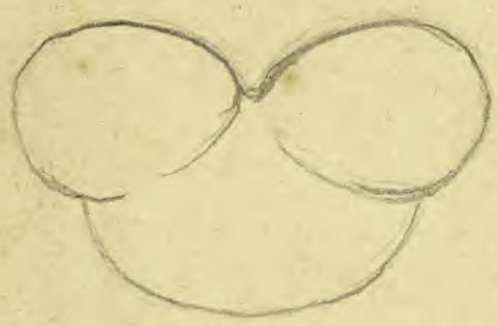
X 415

Pileus Tuber ? involucr. minor Sept 15 1863

Mobile Febr. 1850

bracts & involucres scales remarkably fringed

0.039



not open

fully developed.

x4

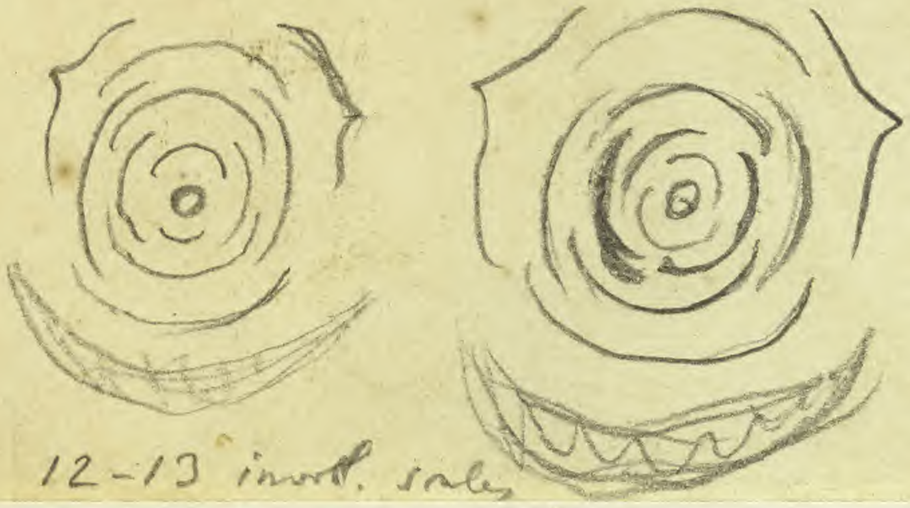
x 10

white Membrane

dissepiment below

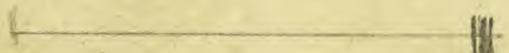
base of anther very conspicuous

Bot Kans Rep



12-13 involv. scales

bracts & involucral scales strongly striate fringed



0.039 – 0.040

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cm
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Druggists

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Missouri Botanical Garden
George Engelmann Papers

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Missouri Botanical Garden

Sept 16 1863

Pinus Taeda

Houston Texas, Linn. 1840. Mark

x 415

0.030

0.033

smaller cones sometimes not symmetrically

0.037

x 10

monthly 0.035

0.030 0.037

(11-)12 in whorl

Scales

rarely only 10 scales

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X415

Pinus Taeda

Delaware

Aug 21 1863

Wm M Canby

0.038

0.036

Diagram of transverse section of leaves of involucre

Diagram of transverse section of leaves of involucre

X4

0 1 2 3 4 5 6 7 8 9 10
cm
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old sheaths 5–6–7 l.ins

narrow 12–13 l.ins, or rarely shoots (male) only 9 l.

bracts somewhat persistent the 2d year, 3–6 l.ins, 6–10 on vigorous shoots

bracts of male inflorescence squarrose, persistent after the fall of the anthers

8 involucral scales, large, ovate acute, strongly fimbriate 2 exterior ones very strongly boatshaped, carinate, all but the outermost single one (4th) turned backwards

male aments 15–20 l. long.

axis of male inflorescence persistent

bracts 6 l.ins long

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Pinus Jacobi

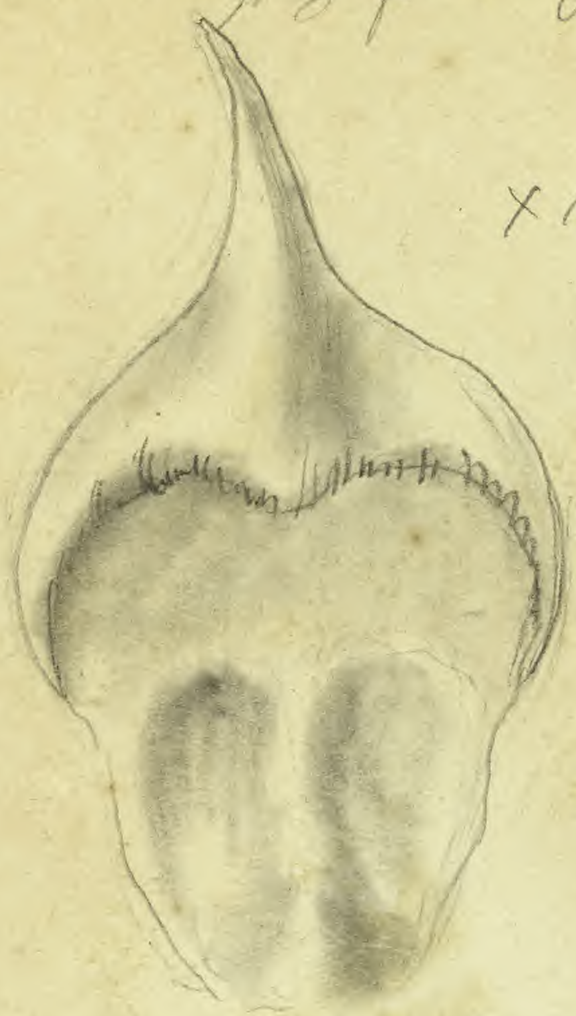
Young fruit July 1863

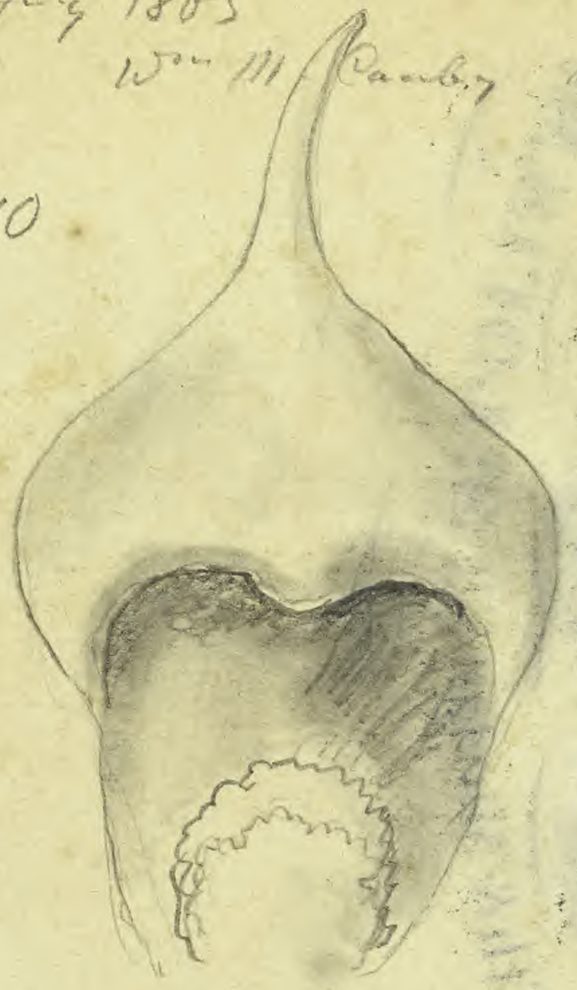
Aug. 1863

Wm M Canby del

×10

×4





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Pinus Taeda

Nov 11 1863

Maryland Sept 1863, Canby

X4

albume

Cotyl 5-8

mostly 7

Cotyl 1 5-
2 6
5 7
1 8

0 1 2 3 4 5 6 7 8 9 10
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Pine, Tacoma

May 21 1871

Marsh & April 1871, Dr Mellichamp

young

old leaves
6-8" long

lower outer side

×30

×30

×4

upper inner side ×4

usual

rare

scale of cone
×4

8 scales visible

bract

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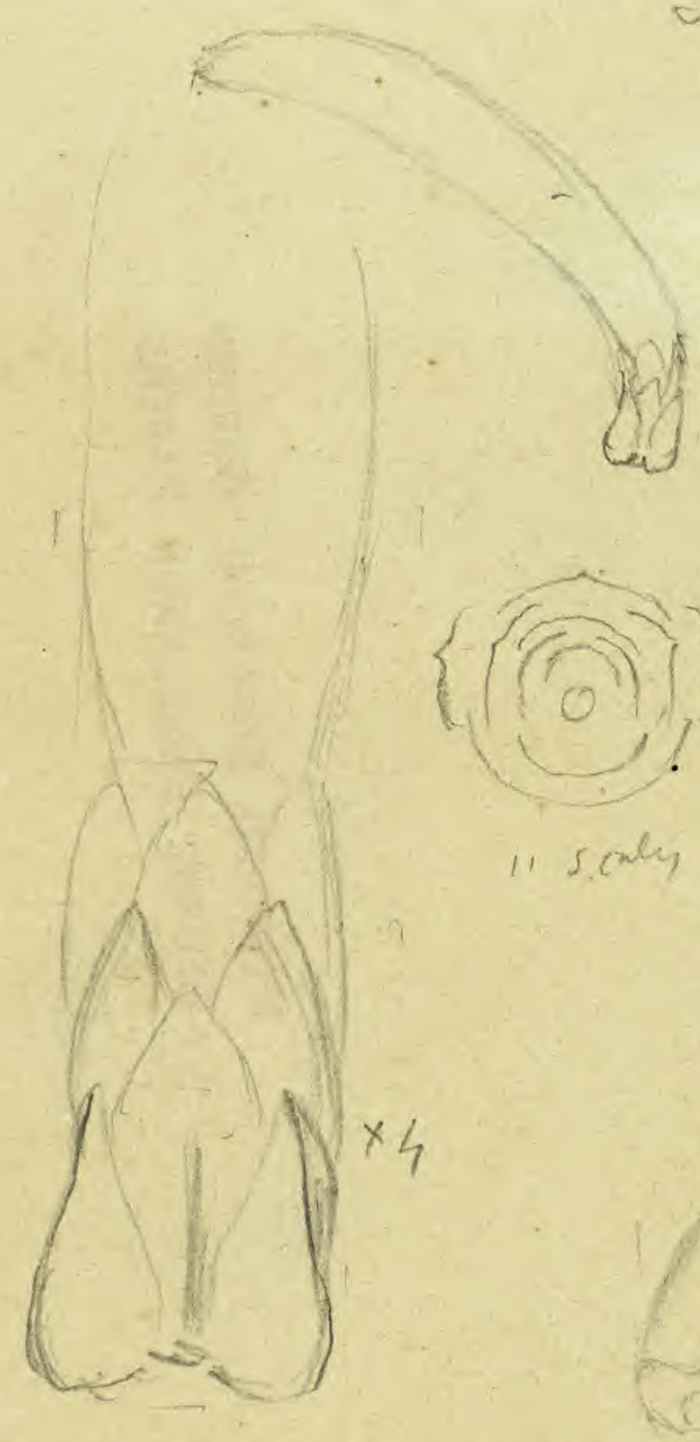
Pinus Taeda

May 23 1871

"Swamp Pine" New Hanover Co N Carol

A. H. Sluck



11 involv. scales

0 1 2 3 4 5 6 7 8 9 10
cm
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Pinus insignis — Monterey Calif Dr Parry 1850

Oct 19 1863

albm x4

x10

The Cone from which these seeds are taken is 1" by 2 1/4" Dia very obtuse pointless scales = 11/18, 7 x 11 Spurs most from it.

x4

upper surface

lower

lateral

4 seeds examined all from a single cone

1. 5 Cotyl
1. 6 Cotyl
2 7 Cotyl.

27

R-9

5 1/2 16 1/2

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627 Calif. State Survey
" Monterey - Pine "

P. insignis

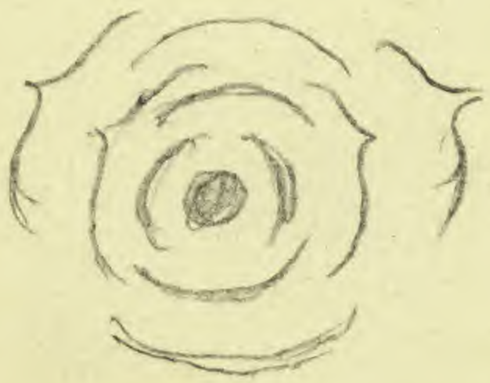
March 13 1865

0.032 – 0.038 Pollen
mostly 0.034 Lin

X 4

Gmelt.

X 10



10 scales

P. insignis is called Monterey Pine

Pinus Californica Lindl, Comm
is called Monterey Pine p 353

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